

INFANT SLEEP POSITIONER

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BACKGROUND OF THE INVENTION

5 **[0001]** Medical advice now suggests that infants should be placed on their backs or side when sleeping in order to reduce the number of incidents of Sudden Infant Death Syndrome (SIDS) or "crib death" as it is commonly known. Even though parents place their babies on their backs, active babies can sometimes roll themselves over onto their stomachs. As this can increase the risk of SIDS, parents can experience a great deal of anxiety when
10 finding their infants lying on their stomachs.

[0002] A variety of sleep positioners have been developed to help maintain infants in the supine position. However, using these sleep positioners can sometimes lead to a situation where the back of the baby's head becomes flattened. Although probably not a medical condition, "flat head" syndrome may cause concern to some parents.

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SUMMARY OF THE INVENTION

[0003] Infant sleep positioners and methods for maintaining an infant in a supine position are disclosed. In one embodiment, the infant sleep positioner comprises a body
20 region, first and second support cushions, and a support pillow. The body region has a top surface forming loop fasteners. The first and second support cushions each have a flat bottom surface having at least one hook fastener. Either or both of the support cushion may have an arcuate upper surface. Additionally, the length of the support cushions may be in the range from about 6 inches to about 8 inches and a may have a width in the range from about 2
25 inches to about 4 inches.

[0004] The support cushions are removably positionable on the top surface of the body region to form a space therebetween to receive and maintain the infant in the supine position. The support pillow extends from at least a portion of the body region and supports the head of the infant when in the supine position. The support pillow includes a cushion
30 member having a support region, configured to support at least a portion of the head of the infant, at least partially surrounding a pressure relief region. The pressure relief region is

configured to receive at least a portion of the back side of the head such that pressure applied to the back side of the head is reduced when lying in the supine position.

[0005] In some embodiments, the sleep positioner may further comprise a sound component to generate sounds, such as a simulated heartbeat, for the infant. The sound component may further include a timer to stop generating the sounds upon the expiration of the timer. The sound component may be located inside a cavity of one of the support cushions and may be activated by depressing a region of the support cushion located above an activation mechanism of the sound component. The support cushion may include a removable cover covering the sound component, which when removed, exposes the sound component. Alternately, or additionally, one of the support cushions may also include a vibrator component. Either the same support cushion or the second support cushion may also include a pocket to hold a pacifier or other baby items.

[0006] The sleep positioner may alternately or additionally include a recordable sound component. The recordable sound component includes a record mechanism to record a voice and a playback mechanism to playback the recorded voice. A detection mechanism may also be included to detect a sound made by the infant and to activate the playback mechanism upon detection of the sound. The recordable sound component may be located in a cavity defined by the first support cushion.

[0007] Additionally, in some embodiments, the sleep positioner may include a microphone to capture sounds made by the infant. The sounds may be transmitted to an external receiver. The microphone may be located at least partially within the support pillow.

[0008] The support region and/or the body region may include a gel insert. In alternate embodiments either or both of the support region and the body region may be inflatable or may be made of a shape retaining material (such as a viscoelastic material) to retain the shape of the infant. Some embodiments may further include a wedge coupled with at least a portion of the bottom surface of the body region and a bottom surface of the support pillow which has an inclined surface for positioning the body of the infant at an inclined angle. The wedge may also be comprised by a variety of materials, such as a gel insert, inflatable material, or a viscoelastic material.

[0009] The body region may have an outer periphery having a rectangular geometry. It may comprise a quilted material. The material may have properties to enhance the infant's comfort. By way of example, the material may be scented. As a second example, the

material may be a temperature regulating material. Additionally, a bottom surface of the body region may be a waterproof material, such as vinyl.

[0010] In some embodiments, the support pillow may further include an arcuate flange disposed on the cushion member. The arcuate flange is configured to maintain the head of the infant on the support pillow. Optionally, the arcuate flange may be padded. The pressure relief region may comprise a recessed portion in the cushion member, which may optionally comprise an aperture extending through the cushion member. The recessed portion may have a variety of shapes. By way of example, the recessed portion may have a cross-sectional shape consisting of a circle, an oval, an ellipse, or combinations of these shapes. The cushion member may have an outer periphery consisting of a circular geometry, a semicircular geometry, or a rectangular geometry. The width of the body region may be larger than the width of the support pillow.

[0011] In a second embodiment, the sleep positioner may comprise a body region having a top surface forming loop fasteners and a first support cushion disposed on the top surface of the body region. The sleep positioner further includes a second support cushion having a flat bottom surface having at least one hook fastener to removably position the second support cushion on the top surface of the body region so that a space is defined between the first support cushion and the second support cushion. The space is operable to receive and maintain the infant in the supine position. A sound component is positioned at least partially inside one of the first support cushion and the second support cushion. A support pillow, extending from at least a portion of the body region, includes a cushion member having a support region at least partially surrounding a pressure relief region. A padded member is disposed about a periphery of the support region. The support region is configured to support at least a portion of the head of the infant and the pressure relief region is configured to receive a portion of the back side of the head such that pressure applied to the back side of the head is reduced when lying in the supine position.

[0012] In a third embodiment, a method for maintaining an infant in a supine position is disclosed. The method comprises providing a sleep positioner comprising a body region having a top surface forming loop fasteners and first and second support cushions. Each of the support cushions has a flat bottom surface including at least one hook fastener to removably position the first and second support cushions on the top surface of the body region. The sleep positioner further comprises a support pillow having a support region at

least partially surrounding a pressure relief region. The support region is generally flat and the pressure relief region is generally flush with or recessed relative to the support region. The method further comprises placing an infant in a supine position in a space formed between the first support cushion and the second support cushion with the infant's head resting on the support region. At least a portion of the infant's head is disposed over the pressure relief region such that pressure applied to the back side of the head is reduced. At least one of the first support cushion and the second support cushion is adjusted to fit against a side of the infant.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0013] FIG. 1 is a top view of one embodiment of an infant sleep positioner;
- [0014] FIG. 2 is an end view of the support cushion shown in FIG. 1;
- [0015] FIG. 3 is an exemplary a bottom view of the support cushion shown in FIG. 1;
- [0016] FIG. 4 is a second exemplary bottom view of a support cushion used in an infant sleep positioner;
- [0017] FIG. 5 is a side view of the infant sleep positioner of FIG. 1;
- [0018] FIG. 6 is a side view of a second exemplary embodiment of an infant sleep positioner; and
- [0019] FIG. 7 is a third exemplary embodiment of an infant sleep positioner.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

[0020] In the following description, for the purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be apparent, however, to one skilled in the art that the present invention may be practiced without some of these specific details. Although concrete embodiments will be described with reference to an infant sleep positioner used to maintain an infant in a supine position, with minimal or no variations, the positioner may also be used to maintain an infant

in a side-lying position. Additionally, with some minor variations, the sleep positioner may also be used to maintain an older child or an adult in a supine or side-lying position.

[0021] FIG. 1 illustrates an exemplary embodiment of an infant sleep positioner. The sleep positioner 10 includes a body region 14. A variety of materials may be used to form body region 14. For example, in one embodiment, the body region 14 may be a quilted material formed by placing a fill material between fabric pieces. Seams may be sewn into the fabric to prevent shifting of the fill material. The fill material may be selected to enhance the comfort of an infant lying in a supine position. Thus, resilient or "cushiony" materials may be used. By way of example, fill materials that may be used include inflatable materials that may be filled with air or fluids, gel inserts, and viscoelastic material (e.g., memory foam or other type of material that at least partially retains the shape of the infant). Other exemplary materials include rubbers (including foamed rubber), padding, fibers, fiberballs, polyester fill material, fabrics, small pellets, and/or natural materials (e.g., feathers, seeds, hair). Fill materials may be used alone or in various combinations and materials other than those mentioned may also be used. In alternate embodiments, the body region 14 may not be quilted.

[0022] In some embodiments, the body region 14 may have other properties to enhance the comfort of an infant. For example, the body region 14 may include a temperature regulating material. Alternately, or additionally, the body region 14 may include a scented material, such as lavender, which may have a calming effect on the infant.

[0023] A top surface of the body region 14 may form a plurality of loop fasteners (not shown). As will be described further below, loop fasteners may be used to removably attach support cushions 22, 24 to body region 14. Other fastening means, such as snaps, buttons, glue, or sewing may also be used to attach support cushions 22, 24 to body region 14. Optionally, a bottom surface of the body region may be a waterproof material, such as vinyl. This may prevent the transfer of liquids from the sleep positioner 10 to a surface on which the sleep positioner 10 is placed.

[0024] The sleep positioner 10 further includes support cushions 22, 24. Support cushions 22, 24 may be formed by placing a fill material between fabric pieces. Fill materials may include any of the fill materials previously mentioned or other appropriate materials. As will be explained further below, support cushions 22, 24 may be used to maintain the infant in the supine position. Thus, the support cushions 22, 24 may be a variety of shapes that may

help prevent the infant from rolling over. For example, as shown in the exemplary embodiment of FIGS. 1 and 2, support cushion 22 may have a flat bottom surface and an arcuate upper surface. The support cushions may be elongated and have a length in the range from about three inches to about twelve inches, more preferably from about six inches to about eight inches, and a width in the range from about 1 inch to about 6 inches, more preferably from about 2 inches to about 4 inches. Support cushion 24 may be shaped the same or differently from support cushion 22. Alternate sized support cushions 22, 24 may also be used to retain the infant in a supine position.

[0025] To accommodate the different shapes and sizes of infants, one or both of the support cushions 22, 24 may be removably positionable on the top surface of the body region 14. Thus, as shown in FIG. 3, one or both of the support cushions 22, 24 may include at least one hook fastener 30 attached to a bottom surface of the support cushion 22, 24. Hook fastener(s) 30 may have various shapes and arrangements. The support cushions 22, 24 may be initially placed on the body region 14 to form a space between the support cushions 22, 24 to approximately accommodate the infant placed in the supine position. After the infant is placed in the space, further adjustments may be made to the positioning of the support cushions 22, 24 as necessary.

[0026] The sleep positioner 10 further includes a support pillow 12 extending from at least a portion of the body region 14. Support pillow 12 may be seamed together with body region 14 or may seamlessly extend from body region 14. As illustrated in the exemplary embodiment of FIG. 1, the body region 14 may generally have a rectangular perimeter which tapers to a narrower width at one end. The support pillow 12 may extend from the narrower width portion of the body region 14. It should be appreciated that in alternate embodiments, support pillow 12 and body region 14 may be of various shapes and sizes. For example, the support pillow 12 may have an outer perimeter that is generally semicircular, generally circular, generally rectangular, or another appropriate shape. Similar or alternate shapes may also be used for body region 14.

[0027] The support pillow 12 is designed to receive the back of the infant's head and comprises a support region 16 and a pressure relief region 18. Support region 16 may conveniently be constructed by stuffing a fill material between pieces of fabric in a manner similar to a conventional pillow. The fill material may be a resilient material, such as an inflatable material, a gel material, a viscoelastic material, or other type or combination of fill

materials previously described with reference to body region 14. The fill material used in support region 16 may be the same or different from the fill material used in body region 14.

[0028] Support region 16 includes a central aperture that extends through support region 16. This aperture defines pressure relief region 18. In use, the back of the infant's head rests upon the support region 16 and is disposed over the pressure relief region 18. Thus, a substantial amount of pressure that would otherwise be applied to a generally small region on the back of the infant's head when lying in a supine position to be distributed to other locations on the head. This may eliminate or reduce the flattening of the back of the infant's head that may occur over time from lying in a supine position.

[0029] The pressure relief region 18 may be configured in a number of ways, such as, for example, an aperture or depression surrounded at least in part by the support region 16, a material that is less resilient than the support region 16, or the like. The outer perimeter of the pressure relief region 18 may be varied. By way of example, the outer perimeter may be circular, square, rectangular, elliptical, arcuate, or the like. As previously described, in use, the back of the infant's head rests on support region 16 and is positioned over the pressure relief region 18. If configured as an aperture, the back of the head may experience no pressure at this region (with the entire weight of the head being supported by the surrounding support region 16). Alternatively, the support region 16 may be configured to have a certain height, outer perimeter and/or resilience so that some of the head's weight is supported by a surface positioned below the support region 16.

[0030] Optionally, support pillow 12 may further include an arcuate padded roll 20 partially surrounding support region 16. Roll 20 fits snugly around the infant's head and may serve to support the infant's neck as well as to prevent the infant's head from rolling off of support pillow 12. U.S. Pat. No. 6,321,403, hereby incorporated by reference, discloses further details of a sleep pillow 12 that may be used in sleep positioner 10.

[0031] In use, an infant may be placed onto sleep positioner 10, with the infant's head being surrounded by roll 20, and the infant's back and legs resting on body region 14. The infant's arms may be spread out between the support pillow 12 and the support cushions 22, 24. Support cushions 22, 24 may be adjusted to fit snugly against the infant's sides. The back of the infant's head fits within the aperture defined by pressure relief region 18. The sides of the head rest upon support region 18. Depending on the resilience of support region 16, its height, and the shape and size of the aperture, the back of the head may rest upon a

surface below support pillow 12, or may be suspended above the surface. In this way, the pressure applied to the back of the head is greatly reduced or eliminated to prevent flattening of the back of the head, as well as providing additional comfort to the infant.

[0032] Referring now to FIG. 4, in some embodiments, one of the support cushions 22 may further include a sound component 34 to generate sounds for the infant. By way of example, the sound component 34 may generate sounds simulating a heartbeat, which may help sooth the infant. The sound component 34 may be located inside a cavity 32 at the bottom of the support cushion 22. Support cushion 22 may include a removable slip cover that may be used to cover the sound component 34. Thus, hook fastener 30 may be attached to the bottom surface of the slip cover. This may provide for the ability to remove sound component 34 from support cushion 22 before washing. Alternately, the sound component 34 may be exposed at the bottom surface of the support cushion 22. In other embodiments, the sound component 34 may be positioned in a different location (e.g., a location near the top surface) of support cushion 22 or may be located in a different part of sleep positioner 10, such as body region 14 or support pillow 12.

[0033] The sound component 34 may include an activation mechanism (not shown), such as a push button, that may be used to activate the sound component 34. By way of example, activation mechanism may be activated by depressing an area of the support cushion 22 located above the activation mechanism. In some embodiments, activation mechanism may also be used to deactivate the sound component 34. Alternately, or additionally, sound component 34 may include a timer. Upon activation, the sound component 34 will continue to generate sounds until the timer expires.

[0034] In some embodiments, sound component 34 may be a recordable sound component that may be used to record and playback a voice (such as the infant's mother or father). Sound component 34 may therefore include a record mechanism that may be used to record sounds for the infant. Sound component 34 may also optionally include a detection mechanism to detect a sound made by the infant and to activate a playback mechanism upon detection of the sound. The detection mechanism may only activate the playback mechanism if the sounds detected are of a sufficient volume or character (e.g., crying). In alternate embodiments, the recordable sound component may be a component separate from sound component 34. In these embodiments, sleep positioner 10 may include both a sound component to generate soothing sounds (such as a heartbeat) for the infant and a recordable

sound component which may be used to automatically provide the sounds of a familiar voice to a crying infant.

[0035] In addition to, or instead of sound component(s) 34, sleep positioner 10 may further include a vibrator component (not shown). This may provide the ability to generate soothing vibrations for the infant. Thus, vibrator component may be located at least partially within a cavity defined by one or both of the support cushions 22, 24. As described with reference to the sound component 34, the support cushion(s) in which the vibrator component is located may include a slip cover that may be removed to expose vibrator component so that it may be removed before washing. Vibrator component may alternately be located within body region 14. Activation mechanisms and/or timers that operate in a similar fashion to that described above may also be used with vibrator component.

[0036] As shown in FIG. 5, sleep positioner 10 may be configured so that body region 14 and support pillow 12 lie flat on a surface. Alternately, as illustrated in FIG. 6, sleep positioner 10 may include a wedge 40 coupled with at least a portion of the bottom surface of the body region 14 and the bottom surface of the support pillow 12. Wedge 40 has an inclined surface which causes the support pillow and body region 14 to be at an angle inclined to the surface on which the sleep positioner 10 rests. As can be appreciated, this causes the infant's head to be elevated, which may ease nasal congestion and may help improve digestion. Wedge 40 may be comprised any type of resilient material, such as the resilient materials previously described (e.g., gel, viscoelastic, inflatable, etc.).

[0037] Sleep positioner 10 may include additional components that may enhance the comfort of the infant or provide features that enhance the usability of sleep positioner 10. Exemplary additional features that may enhance the functionality of sleep positioner 10 will now be described with reference to FIG. 7. It should be appreciated that each of these features may be used alone or in various combinations with the other features previously described.

[0038] Infants often use a pacifier to sooth themselves to sleep. Thus, a pocket 44 may be provided with sleep positioner 10 to hold a pacifier. The pocket 44 may be located on one of the support cushions or may be in an alternate location (e.g., the body region 14). After placing the infant in the sleep positioner 10, the pacifier may conveniently be retrieved from the pocket 44, which may be defined by one of the support cushions 24. The pocket 44 may also or alternately be used to hold other baby items.

[0039] A microphone 42 may also, or alternately, be included as part of sleep positioner 10. The microphone 42 may be used to capture sounds made by the infant. The captures sounds are then transmitted to an external receiver. Thus, the parents of the infant are provided with the ability to monitor noises made by the infant while the infant is
5 positioned within sleep positioner 10.

[0040] The invention has now been described in detail for the purposes of clarity of understanding. However, it will be appreciated that certain changes and modifications may be practiced within the scope of the appended claims.